



2017

Ballroom Theater - Pinisi Tower 3<sup>rd</sup> Floor  
Universitas Negeri Makassar  
21- 22 January 2017





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PROCEEDING

INTERNATIONAL CONFERENCE ADRI - 5

2017

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INTERNATIONAL CONFERENCE ADRI - 5

## Scientific Publications Toward Global Competitive Higher Education

Ballroom Theater - Pinisi Tower 3<sup>rd</sup> Floor  
Universitas Negeri Makassar  
21- 22 January 2017





**INTERNATIONAL CONFERENCE ADRI - 5**

**"Scientific Publications toward Global Competitive Higher Education"**

**PROCEEDING**

**INTERNATIONAL CONFERENCE ADRI - 5**

**"Scientific Publications toward Global Competitive Higher Education"**

**Publishing Institute  
DPD ADRI SULSEL**

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## **FOREWORD**

The theme of international conference ADRI – 5 is Scientific Publications toward Global Competitive Higher Education. This conference is an annual academic event that holds as a part of events series of inauguration to DPD ADRI SULSEL period 2017 - 2021. This proceeding consists of all accepted and supplementary paper. They are also presented in the conference. All papers are contributed by researchers who are not only academic member of ADRI but also those who come from many area disciplines such as teachers, practitioners, and students. It is hoped that this proceeding will be used well as academic references to share knowledge in produce quality scientific publication to build competitiveness of the higher education in the globalization era.

Makassar, 22 January 2017

Editor





## INTERNATIONAL CONFERENCE ADRI - 5

### "Scientific Publications toward Global Competitive Higher Education"

#### THE SCHEDULE OF INTERNATIONAL CONFERENCE ADRI - 5

Theater Room - 3<sup>rd</sup> Floor Pinisi Tower UNM, 21 January 2017

| TIME          | ACTIVITY   | PRESENTER  | PIC  |
|---------------|--|--|--|
| 08.00 – 09.00 | Registration   |  | Committee  |
| 09.00 – 09.05 | Opening ceremony   | <i>Master of Ceremony</i> (MC)   |  |
| 09.05 – 09.10 | Singing Indonesia Raya   | Dirigent   |  |
| 09.10 – 09.30 | Inauguration of DPD ADRI Sulsel  | Dr. Achmad Fathoni Rodli, M.Pd.  | MC   |
| 09.30 – 09.40 | Organizing Report  | Chairman Committee<br>Dr. Faizal Amir, M.Pd.   | MC   |
| 09.40 – 09.50 | Speech as Chairman of DPP ADRI Sulsel  | Prof. Dr. Husain Syam, M.TP.   | MC   |
| 09.50 – 10.00 | Speech as Chairman of DPP ADRI   | Dr. Achmad Fathoni Rodli, M.Pd.  | MC   |
| 10.00 – 10.10 | Speech of Ministry   | Dr. Ir. Agus Puji Prasetyono, M.Eng.<br>(Expert Staff of Ministry of Research, Technology and Higher Education)  | MC   |
| 10.10 – 10.20 | Speech of Vice Governor of South Sulawesi  | Ir. Agus Arifin Nu'mang, M.Si.   | MC   |
| 10.20 – 10.40 | Cultural Action  | Traditional Dance  | MC   |
| 10.40 – 10.50 | Souvenir Gift  | Given by Chairman of DPD ADRI SULSEL   | MC   |
| 10.50 – 11.00 | Coffee Break   |  |  |
| 11.00 – 12.00 | Speech of Keynote Speaker<br>(Expert Staff of Ministry of Research, Technology and Higher Education) | Dr. Ir. Agus Puji Prasetyono, M.Eng.   | <b><u>Moderator:</u></b><br>Widya Karmila Sari               |
| 12.00 – 13.00 | Lunch Break  |  | Committee  |
| 13.00 – 15.00 | Speech of Invited Speaker<br>(Panel Session)   | 1. Prof. Dr. Ruzairi Abdul Rahim (UTHM Malaysia)<br>2. Dr. Ir. Gatot Hari Priowirjanto, M.Sc. (Director SEAMEO, Bangkok)<br>3. Dr. Achmad Fathoni Rodli (DPD ADRI Pusat)<br>4. Dr. Anton Muhibuddin (JSPS - Japan) | <b><u>Moderator:</u></b><br>Widya Karmila Sari, S.Pd., M.Pd. |
| 15.00 – 17.30 | Parallel Session<br>Ballroom Lantai 2, Room 1  | National & International Presenter   | Moderator:<br>Dr. Syafruddin Side                            |
| 15.00 – 17.30 | Parallel Session<br>Ballroom Lantai 2, Room 2  | National & International Presenter   | Moderator:<br>Dr. Hendrajaya                                 |
| 15.00 – 17.30 | Parallel Session<br>Ballroom Lantai 2, Room 3  | National & International Presenter   | Moderator:<br>Dr. Wahira                                     |
| 15.00 – 17.30 | Parallel Session<br>P3G Lantai 3, Room 1   | National & International Presenter   | Moderator:<br>Zaenal Abidin, M.Si.                           |
| 15.00 – 17.30 | Parallel Session<br>P3G Lantai 3, Room 2   | National & International Presenter   | Moderator:<br>Faisal Najamuddin, M.Eng.                      |





## INTERNATIONAL CONFERENCE ADRI - 5

### "Scientific Publications toward Global Competitive Higher Education"

#### THE SCHEDULE OF INTERNATIONAL CONFERENCE - PARALLEL SESSION -

Ruang : Ball Room I Lt.2  
Moderator : Dr. Syafruddin Side, M.Si.

| Time          | SPEAKERS  | INSTITUTION   | PAPER   |
|---------------|---|---|---|
| 15.00 – 15.30 | Nurlita Pertiwi   | Universitas Negeri Makassar   | Environmental Value Of River Bank   |
|               | Faizal Suyuthi  | Fakultas Teknik Universitas Pejuang R.I   | Correlational Study Of Environmental Science And Education Levels With Concern For Environment  |
|               | Muhammad Amin Syam <sup>1</sup> , Andi Ilham Samanlangi <sup>2</sup> , La Ode Muh. Yazid Amsah <sup>3</sup>                                   | <sup>1,2,3</sup> Jurusan Teknik Pertambangan Fakultas Teknik Univrsitas Pejuang Republik Indonesia  | Groundwater Modelling To Predict Flow And Negative Impacts Of Groundwater Abstraction   |
|               | Ritnawati <sup>1</sup> , Enny Tri Mahyuni <sup>2</sup> , Andi Amrullah <sup>3</sup>   | <sup>1</sup> Jurusan Teknik Pertambangan Fakultas Teknik Univrsitas Pejuang Republik Indonesia  | Acid Mine Treatment Method Bioremediation Coal Mine Using Bacteria And Thiobacillus Thiobacillus Ferrooxidans Thiooxidans                   |
| 15.30 – 16.00 | Nur Asia Umar <sup>1)</sup> , Sri Mulyani <sup>2)</sup> , Ida Suryani <sup>3)</sup> , and Muh.Hatta <sup>4)</sup>                             | <sup>1)</sup> Faculty Fishery Cokroaminoto Makassar University, <sup>2)</sup> Faculty Fishery Bosowa University<br><sup>3)</sup> Faculty Agronomy Cokroaminoto Makassar University,<br><sup>4)</sup> Faculty Marine Science and Fishery Hasanuddin University | Model And Simulation Of Relationship Tropodinamik Waters Of Lake Tempe, Wajo Disctrit.  |
|               | Slamet Widodo <sup>1</sup> , Saifuddin Sirajudin <sup>2</sup>   | <sup>1</sup> Universitas Negeri Makassar<br><sup>2</sup> Hasanuddin University  | Effect Long Drying On The Quality Of Flour Fish Mujahir ( <i>Oreochromis Mossambicus</i> ) And Fish Sardenilla ( <i>Sardinella Aurita</i> ) |
|               | Maimuna Nontji  |   | Potential Analysis of Methane Gas Reduction by <i>Methanotrophs</i> Bacteria from Rice Field  |
|               | Muhammad Wiharto <sup>1</sup> , Herlinda Haruna <sup>2</sup> , Fatma Hiola <sup>3</sup> , Muhammad Wijaya <sup>4</sup> , Hamka L <sup>5</sup> | Universitas Negeri Makassar   | Analysis Of Vegetation Saplings Used In Mixed Forest Burnt Bawakaraeng Mountain   |
| 16.00 – 16.30 | Yiyin Klistafani  | Politeknik Negeri Ujung Pandang   | Experimental And Numerical Study Of Turbulent Flow Characteristic In Asymmetric Diffuser  |
|               | Adriyani Adam <sup>1</sup> , Sukardi <sup>2</sup> , Hasir <sup>3</sup> , Agus Erwin Ashari <sup>4</sup>                                       | <sup>1</sup> Health Polytechnic of Mamuju<br><sup>2</sup> BKKBN of West Sulawesi Province   | Factors Related To Early Age Marriage At Mamuju District  |
|               | Lilies Anggarwati Astuti  | Universitas Muslim Indonesia  | An Effect Of Centrifugation Speed, Centrifugation Duration, And The Use Of Anticoagulants (Edta And Citrate Acid 3.8%) Of The Quantity      |





## INTERNATIONAL CONFERENCE ADRI - 5

### "Scientific Publications toward Global Competitive Higher Education"

| Time          | SPEAKERS   | INSTITUTION  | PAPER  |
|---------------|--|--|--|
|               |  |  | Of Platelet Rich Plasma (PRP)  |
|               | Rukli  | Universitas Muhammadiyah Makassar  | Characteristics Analysis Of Math Items Type On Data Trend In International Mathematics And Science Study   |
| 16.30 – 17.00 | Amal Said  | Faculty of Agriculture<br>Makassar Islamic University  | Mastery Rights Of Agricultural Land Management In South Sulawesi   |
|               | Harapin H, A <sup>1</sup> .<br>Napirah <sup>2</sup> , and S. Wanci <sup>3</sup>                            | Faculty of Animal Science,<br>Universitas Halu Oleo  | Body Weight And Carcass Percentage Of Male And Female Local Pigeon ( <i>Columbia Livia</i> ) In Kendari City   |
|               | Nurnaeni   | Academy of Midwifery (AKBID)<br>Gunung Sari Makassar   | Analysis Of Effect Of Motivation Nurse Nursing Documentation Of Filling The Medical Record Files   |
|               | Nilawati Uly <sup>1</sup> , Ratnasari Iskandar <sup>2</sup> ,<br>and Ririn Eka Puspitasari S. <sup>3</sup> | <sup>123</sup> STIKES Mega Buana Palopo  | Factors That Related With The Elderly Activeness In The Utilization Of The Elderly Posyandu  |
| 17.00 – 17.30 | Musbir <sup>1</sup> , Sudirman <sup>2</sup> , and Ridwan Bohari <sup>3</sup>                               | Department of Fisheries, Faculty of<br>Marine Science and Fisheries,<br>Hasanuddin University. | The Resources Of Spiny Lobster ( <i>Panulirus</i> spp) In Southern Coastal Waters Of Bulukumba Regency   |
|               | Riza Sativani Hayati   | Biology Education Department,<br>Mumammadiyah Makassar University                              | Potential Leaf Extract <i>Orthosiphon Aristatus</i> As Growth Inhibitor Of <i>Candida Albicans</i>   |
|               | Nurfaizah AP.  | Faculty of Education<br>University Negeri Makassar   | The Implementation Of Problem Based Learning (PBL) Model To Improve Critical Thinking Ability In Civics Learning To Fifth-Grade Students In SD Inpres 10/73 Bajoe Eastern Tanete Riattang District Of Bone |
|               | Ambo Dalle   | Universitas Negeri Makassar  | The Effectiveness Of Cooperative Learning Model Concept Mapping In Learning Writing Skill In German Language   |



## INTERNATIONAL CONFERENCE ADRI - 5

### "Scientific Publications toward Global Competitive Higher Education"

#### THE SCHEDULE OF INTERNATIONAL CONFERENCE - PARALLEL SESSION -

Ruang : Ball Room 2 Lt.2  
Moderator : DR. Wahira, M.Hum

| TIME          | SPEAKERS   | INSTITUTION   | PAPER  |
|---------------|--|---|--|
| 15.00 – 15.30 | Hardianto Djanggih <sup>1</sup><br>and Aan Aswari <sup>2</sup>                                       | <sup>1</sup> Law Faculty Universitas<br>Tompotika Luwuk<br><sup>2</sup> Law Faculty Universitas Muslim<br>Indonesia | Information Technology Crimes Against Children As Victims  |
|               | Lu'mu  | Fakultas Teknik , Universitas<br>Negeri Makassar  | Media Card For Anticorruption Learning On The Subject PkN (Pendidikan<br>Kewarganegaraan) In Junior High School          |
|               | Kamri Ahmad <sup>1</sup> and<br>Andi Arjuni K. Petta<br>Lolo <sup>2</sup>                            | Indonesia Muslim University,<br>Makassar, Indonesia   | The Influence Of Political System On Corruption  |
|               | Rusdiana Junaid <sup>1</sup> , Rustan<br>Santaria <sup>2</sup>                                       | <sup>1</sup> Universitas Cokroaminoto Palopo  | An Excursion As A Great Medium Of Writing Process  |
| 15.30 – 16.00 | Ahmad  | Universitas Negeri Makassar   | Urgency Of Spiritual Therapy In Developing Quality Of Soul And Character Of<br>Students At SMAN Makassar                 |
|               | Umar   | STISIP Muhammadiyah Sinjai  | The Determinant Factors Toward The Effectiveness Of Supervision Function Of<br>Local Parliament (DPRD) In Sinjai Regency |
|               | Hariratul Jannah <sup>1)</sup> , and<br>Muammar Hasbullah <sup>2)</sup>                              | Faculty of Letters, Universitas<br>Muslim Indonesia   | "Aru" As Traditional Poetry In Makassar The Study Of Stylistic   |
|               | Mahmudah   | Universitas Negeri Makassar   | Scientifics Markers In Academic Text   |
| 16.00 – 16.30 | Fatoni <sup>1</sup> ,<br>Cahyo Yuwono <sup>2</sup> ,<br>Mohamad Annas <sup>3</sup>                   | <sup>123</sup> Faculty of Sport Science,<br>Semarang State University   | Understanding Soccer Players Of The Laws Of The Game 2010/2011   |
|               | Syamsuddin Maldun  | Universitas Bosowa  | Prospects For Public Private Partnership Infrastructure In South Sulawesi Province                                       |
|               | H. Joko Tri Brata <sup>1)</sup> ,<br>La Ode Bariun <sup>2)</sup> , and<br>Asri Djauhar <sup>3)</sup> | Sulawesi Tenggara University  | Model Poverty Based Collaboration  |
|               | Najmi Kamariah <sup>1</sup> ,<br>Maryati Ismaili <sup>2</sup> ,                                      | <sup>1</sup> Sekolah Tinggi Ilmu<br>Administrasi Negara (STIA LAN)  | An Integration of Servqual Method and Quality Function   |





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### “Scientific Publications toward Global Competitive Higher Education”

| TIME          | SPEAKERS   | INSTITUTION  | PAPER  |
|---------------|--|--|--|
|               | Abd. Rahman Kadir <sup>2</sup> ,<br>and Noer Bahri Noer <sup>2</sup> | Makassar<br><sup>2</sup> Universitas Hasanuddin    |  |
| 16.30 – 17.00 | Muhammad Jufri   | Psychologi Faculty, Universitas<br>Negeri Makassar | Talent Management: Toward Optimal Quality Of Human Resources   |
|               | Yusriadi Hala  | STIE – YPUP  | The Effectiveness of The Intensification and Extensification Strategy To Increase<br>The Revenue Of Makassar City            |
|               | Sunardi  | Universitas Negeri Makassar                        | Environmental Conservation Through Waste Management Of Car Repair Shop In<br>Makassar City                                   |
|               | Moh. Ahsan S. Mandra   | Universitas Negeri Makassar                        | Analysis Of Learning Assessment In Physics At Automotive Engineering Education<br>Study Program State University Of Makassar |



## INTERNATIONAL CONFERENCE ADRI - 5

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#### THE SCHEDULE OF INTERNATIONAL CONFERENCE - PARALLEL SESSION -

Ruang : Ball Room 3 Lt.2  
Moderator : Dr. Hendra Jaya, M.T

| TIME          | SPEAKERS   | INSTITUTION   | PAPER   |
|---------------|--|---|---|
| 15.00 – 15.30 | Risa Bernadip Umar <sup>1</sup> ,<br>Munawar <sup>2</sup> ,<br>Natsir Thamrin <sup>3</sup>                         | Fakultas Teknik<br>Universitas Pejuang Republik Indonesia   | Effect Of Heat Treatment On The Mechanical Properties Of Steel S45c<br>Welding Process With Smaw (Shielded Metal Arc Welding)   |
|               | Andi Ilham Samanlangii <sup>1)</sup><br>Adi Tonggiroh <sup>2)</sup> and<br>Moh.Khaidir Noor <sup>3)</sup>          | <sup>1,3)</sup> Mining Engineering<br>Department, Universitas Pejuang<br>Republik Indonesia (UPRI)<br><sup>2</sup> Geologi Department,<br>Universitas Hasanuddin                          | Prospecting Iron Ore In Sabussalam Region Calendar In City Subulussalam,<br>Aceh  |
|               | Heri Suryaman <sup>1)</sup> , Kusnan <sup>2)</sup> ,<br>Suparji <sup>3)</sup> , and Supari<br>Muslim <sup>4)</sup> | <sup>1,2,3)</sup> Civil engineering, faculty of<br>technique, surabaya state of university<br><sup>4)</sup> Electrical Engineering, faculty of<br>technique, surabaya state of university | Developing KKNi Based Teaching Administration And The Problem Solving<br>In Order To Increase The Learning Outcomes Of Students In<br>Beam Structure-I Class, Civil Engineering, State University Of Surabaya |
|               | Kusnan <sup>1)</sup> , and<br>Agus Wiyono <sup>2)</sup>  | Civil engineering, faculty of technique,<br>surabaya state of university  | Development Of Flood Countermeasures Model In Campus Of Ketintang<br>UNESA Surabaya   |
| 15.30 – 16.00 | Agus Budi Santosa  | Electrical Department, of State<br>University of Surabaya   | The Development Of Learning Media To Improve The Results Of The<br>Study Of Data Communication In Industrial Electronics Engineering<br>Department At SMKN 1 Jetis Mojokerto                                  |
|               | Syamsidah  | Faculty of Engineering, Universitas<br>Negeri Makassar  | Employer Relationship Patterns And Housemaids   |
|               | Hasanah <sup>1</sup> ;<br>Muh. Nasir Malik <sup>2</sup> ;<br>Elfira Makmur <sup>3</sup> ;                          | Faculty of Engineering ,<br>Universitas Negeri Makassar   | Model Integration Of Discovery Learning With Contextual Teaching And<br>Learning (DI-CTL MODEL) To Improve The Quality Of Learning In<br>Vocational High School   |
|               | Sapto Haryoko <sup>1</sup> ,<br>Hendra Jaya <sup>2</sup>   | Universitas Negeri Makassar   | Alignment of Supply and Demand workforce Vocational School Graduates<br>On Industry   |
| 16.00 – 16.30 | Yasser A. Djawad <sup>1</sup> ,<br>Sutarsi Suhaeb <sup>2</sup>   | Universitas Negeri Makassar   | Role of Information Technology in Health Sector in Improving Health Care  |
|               | Muhammad Yahya   | Universitas Negeri Makassar   | Empowerment Of Dropout Students School By Training Of Servicing<br>Motorcycle   |





## INTERNATIONAL CONFERENCE ADRI - 5

### "Scientific Publications toward Global Competitive Higher Education"

| TIME          | SPEAKERS  | INSTITUTION   | PAPER  |
|---------------|---|---|--|
|               | Muliaty   | Creative Media State Polytechnic Makassar   | The Design Of Tour Guide Application Based On Android  |
|               | Abdul Muis Mappalotteng <sup>1</sup> ,<br>Fathahillah <sup>2</sup> ,<br>Pattasang <sup>3</sup>      | Technology and Vocational Education,<br>Postgraduate, State University of<br>Makassar   | The Effectiveness Of Using Plc Trainer Panel System In The Practice<br>Learning Of Operating Electromagnetic Control System In Vocational High<br>School |
| 16.30 – 17.00 | Ummiati Rahmah  | Universitas Negeri Makassar   | Theatrical Mini Development Character Early Age Child at TK Melati UNM   |
|               | Muhammad Saleh <sup>1</sup> and<br>Mayong Maman <sup>2</sup>  | Universitas Negeri Makassar   | Politeness Strategy Of Students' Speaking Skill In<br>Learning Interaction   |
|               | Muhammad Basri D <sup>1</sup> ,<br>Andi Tenri Ampa <sup>2</sup> , and<br>Sitti Halijah <sup>3</sup> | <sup>1</sup> Department of English, Faculty of<br>Letters, UMI Makassar,<br><sup>2</sup> Department of English Education,<br>Faculty of Teachers Training and<br>Education, Unismuh Makassar,<br><sup>3</sup> Department of English Education,<br>Faculty of Letters, UMI Makassar, | The Specified Patterns Of Noun Phrases Used By The Fourth Semester<br>Students In Their Paragraphs   |
|               | Mahmud Mustafa  | Universitas Negeri Makassar   | Material Development Teaches Digital Electronic Gets Multimedia's Basis At<br>Tech Education Majors Unm's Electronics                                    |



## INTERNATIONAL CONFERENCE ADRI - 5

### "Scientific Publications toward Global Competitive Higher Education"

#### THE SCHEDULE OF INTERNATIONAL CONFERENCE - PARALLEL SESSION -

Ruang : P3G Ruang I Lt.3  
Moderator : Zainal Abidin, SE., M.Si.

| TIME          | SPEAKERS   | INSTITUTION  | PAPER   |
|---------------|--|--|---|
| 15.00 – 15.30 | Purnamawati <sup>1</sup> ,<br>Hasanah <sup>2</sup> ,<br>Nuridayanti <sup>3</sup>   | Fakultas Teknik, Universitas Negeri<br>Makassar  | The Implementation Of Problem Posing Learning Model Of Subject Electrical<br>Engineering  |
|               | Muhammad Ilham Bakhtiar <sup>1</sup> ,<br>Sinta Nurul Oktaviana K. <sup>2</sup>  | 1STKIP Andi Matappa.Pangkep  | Cognitive Restructuring Application Techniques To Reduce Student Behavior<br>In Academic Procrastination  |
|               | St. Asriati AM.  | Fakultas Keguruan dan Ilmu<br>Pendidikan, Universitas<br>Muhammadiyah Makassar   | The Use Of Predict-Explain-Observe-Explain In Improving The Students'<br>Speaking Ability At The Eleventh Year Of SMA Batara Gowa (An<br>Experimental)  |
|               | Musripah <sup>1</sup> , Ismet Basuki <sup>2</sup> ,<br>Euis Ismayati <sup>3</sup> , and Supari<br>Muslim <sup>4</sup>    | <sup>1</sup> SMKN 2 Boyolangu Tulungagung<br><sup>2), 3)</sup> and <sup>4)</sup> Postgraduate Program of<br>State University of Surabaya | The Effect Of Learning Styles And Learning Model Of Students Competence<br>Subject Basic Design At State Vocational High School 2 Boyolangu   |
| 15.30 – 16.00 | Mubasir <sup>1</sup> , Muchlas Samani <sup>2</sup> ,<br>Mochamad Cholik <sup>3</sup> , and<br>Supari Muslim <sup>4</sup> | <sup>1</sup> SMK Al- Huda Kediri <sup>2) 3)</sup> and <sup>4)</sup><br>Postgraduate Program of State<br>University of Surabaya           | The Development Of Motorcycle Trainer Starting System Learning Media To<br>Improve Students' Learning Outcomes In Starting System Repairment<br>Competence  |
|               | Jahja Nawawi <sup>1</sup> , Muclas<br>Samani <sup>2</sup> , Ekohariadi <sup>3</sup> , and<br>Fendi Achmad <sup>4</sup>   | <sup>1</sup> SMK PGRI 4 Kediri <sup>2), 3)</sup> and <sup>4)</sup><br>Postgraduate Program of State<br>University of Surabaya            | The Effect Of Cooperative Learning Model Jigsaw Ii Toward The Students<br>Learning Outcome Electric Light Vehicle Maintenance At State Vocational<br>High School PGRI 4 Kediri  |
|               | Hendro <sup>1</sup> , Muchklas Samani <sup>2</sup> ,<br>Wayan Susila <sup>3</sup> , and Fandi<br>Achmad <sup>4</sup>     | <sup>1</sup> SMK Al Huda Kediri <sup>2) 3)</sup> and <sup>4)</sup><br>Postgraduate Program of State<br>University of Surabaya            | The Development Trainer Media Car Audio Systems To Improve Learning<br>Outcomes Audio System Maintains Competency Skills In State Vocational<br>High School Al Huda Kediri  |
|               | Sutikno <sup>1</sup> ,<br>Supari Muslim <sup>2</sup><br>Bambang Suprianto <sup>3</sup>                                   | <sup>1</sup> SMK Kediri <sup>2)</sup> and <sup>3)</sup> Postgraduate<br>Program of State University of<br>Surabaya                       | The Relationships Among Map Concept Learning Strategies, Lathe Practicum<br>Learning Facilities, Teaching Skills, And Student Learning Outcome Of Grade<br>XI Mechanical Engineering Of All Vocational Senior High Schools Kediri |
| 16.00 – 16.30 | Joko Sukariono <sup>1</sup> ,<br>Supari Muslim <sup>2</sup> , and<br>Munoto <sup>3</sup>                                 | <sup>1</sup> SMK Al Huda Kediri <sup>2)</sup> and <sup>3)</sup><br>Postgraduate Program of State<br>University of Surabaya               | The Effect Of Intellegent Quotient Level And Learning Media Of Automatic<br>Transmission Service Subject Outcome Of Student At Xii Motorcycle<br>Engineering Smk Al Huda Kediri   |
|               | Munirah <sup>1</sup> and Rahmah A. <sup>2</sup>  | Prodi Magister Pendidikan Bahasa<br>dan Sastra Indonesia   | The Real Things Media In Writing Description Learning Of Student Grade X <sub>1</sub><br>MAN Pangkep  |





## INTERNATIONAL CONFERENCE ADRI - 5

### "Scientific Publications toward Global Competitive Higher Education"

| TIME          | SPEAKERS   | INSTITUTION   | PAPER   |
|---------------|--|---|---|
|               | Muhammad Yusri Bachtiar <sup>1*</sup> ,<br>Muhammad Akil Musi <sup>2</sup> ,<br>Syamsuwardi <sup>3</sup> | <sup>1,2,3</sup> Prodi PG-PAUD Fakultas Ilmu<br>Pendidikan Universitas Negeri<br>Makassar   | Developing Project Based Learning Method Using Media Recycling Waste At<br>Group B Islamic Integrated Kindergarten Wihdatul Ummah Makassar                    |
|               | Misykat Malik Ibrahim <sup>1</sup> ,<br>Muhammad Amri <sup>2</sup>                                       | Tarbiyah and Teaching Faculty<br>(FTK), Alauddin State Islamic<br>University  | The Evaluation Of Biology Education Study Program Of Tarbiyah And<br>Teaching Faculty Of UIN Alauddin Makassar  |
| 16.30 – 17.00 | Elidasari  | STEI Triandra   | The Effect Of Inquiry Learning Model To Student Having Field Independent<br>Cognitive Style Toward Writing Skill Of Business Letter                           |
|               | Ridwan <sup>1</sup> , Yansar <sup>2</sup> , and Dedi<br>Kusnadi <sup>3</sup>                             | Faculty of Teacher Training and<br>Education, Borneo Tarakan<br>University  | The Analysis Of Curriculum 2013 Textbooks For The Fourth Grade Students<br>Viewed From The Aspect Of Content Feasibility                                      |
|               | Hikmawati Usman  | Fakultas Ilmu Pendidikan Universitas<br>Negeri Makassar   | The Effect Of Using Audio Visual Media To Learning Outcomes Of Art,<br>Culture And Skills Of Grade IV SD Negeri Mannuruki Tamalate District,<br>Makassar City |
|               | Ramly  | Fakultas Bahasa dan Sastra<br>Universitas Negeri Makassar   | The Discrepancy Between Teaching Plan And Its Implementation  |
| 17.00 – 17.30 | Riana T. Mangesa <sup>1)</sup> , and<br>Anas Arfandi <sup>2)</sup>                                       | <sup>1,2)</sup> Faculty of Engineering -<br>Universitas Negeri Makassar   | Review Of Implementation Values Of Character In The Subject On Vocational<br>Education  |
|               | Muhammad Guntur  | Study Program of Public<br>Administration, Faculty of Social<br>Sciences,<br>State University of Makassar, South<br>Sulawesi, Indonesia | Implementation Of Good Governance Principles On Transparency,<br>Accountability And Participation Community In Indonesia                                      |
|               |  |   |   |



## INTERNATIONAL CONFERENCE ADRI - 5

### "Scientific Publications toward Global Competitive Higher Education"

#### THE SCHEDULE OF INTERNATIONAL CONFERENCE - PARALLEL SESSION -

Ruang : P3G Ruang 2 Lt. 2  
Moderator : Faisal Najamuddin, S.Pd., M.Eng.

| TIME          | SPEAKERS   | INSTITUTION   | PAPER   |
|---------------|--|---|---|
| 15.00 – 15.30 | Andi Paida   | Program Studi Pendidikan Bahasa dan Sastra Indonesia  | Effectiveness Of Application Technique Sentence Stock Exchange In Lesson Setting Paragraph Narrative Class X SMK Gunung Sari 1 Makassar     |
|               | Nahindi Putra Gitama <sup>1)</sup> ,<br>LuhWinaSadevi <sup>2)</sup> ,<br>Supari Muslim <sup>3)</sup> , and<br>BambangSuprianto <sup>4)</sup> | <sup>1,2)</sup> Magister of Engineering and Vocational Education, Post Graduate State University of Surabaya,<br><sup>3,4)</sup> Professor of Engineering and Vocational Education, Post Graduate University of Surabaya, | Comparison Of The Learning Outcomes Of Courslab 2.4 And Power Point Media In PLC Course   |
|               | Syamsiarna Nappu <sup>1)</sup> , and<br>Evi Angraeni <sup>2)</sup>   | Universitas Muhammadiyah Makassar   | Improving Students' Vocabulary Through Jigsaw Technique   |
|               | Herman H <sup>1)</sup> , and Hasruddin <sup>2)</sup>   | Faculty of Sport Science, Universitas Negeri Makassar   | Analysis Of Motivation Of Students Exercise Basketball SMAN 2 Polongbangkeng North District Takalar   |
| 15.30 – 16.00 | Endang Ayu Patrianingsih <sup>1)</sup> ,<br>Ernawati S K <sup>2)</sup> , and<br>Nurhayati B <sup>3)</sup>                                    | <sup>1,2,3)</sup> Post Graduate State University Of Makassar  | The Influence Of Discovery Learning Model Toward The Comprehension Of Biology Concept And Scientific Attitude Of Students At SMAN 3 Takalar |
|               | Joko   | Faculty of Engineering Unesa Surabaya   | Development Learning Tool Problem Based Learning Model Direct Current Machines Lesson   |
|               | Wahyu Prima Agus <sup>1)</sup> ,<br>Achmad Munandar <sup>2)</sup> ,<br>Bambang Supriatno <sup>3)</sup>                                       | Universitas Pendidikan Indonesia  | Reasoning Analysis Of Junior High School Students Around The Settlement Of Indigenous Baduy In Response Environmental Issues                |
|               | Muhammad Khalifah Mustami  | Biology Education Department, Teaching and Science Faculty, State Islamic University of Alauddin Makassar   | Information Reception And Attitude Of Environmental Awareness On Secondary School Students  |
| 16.00 – 16.30 | Ratna Dewi <sup>1)</sup> ,<br>Erwin Udding <sup>2)</sup>   | <sup>1, 2)</sup> Muhammadiyah University of Makassar  | University Students' Errors In Using Elliptical Constructions   |





**INTERNATIONAL CONFERENCE ADRI - 5**  
**"Scientific Publications toward Global Competitive Higher Education"**

| TIME           | SPEAKERS   | INSTITUTION  | PAPER  |
|----------------|--|--|--|
|                | Akbar iskandar <sup>1</sup> ,<br>Muhammad Rizal <sup>2</sup>                           | <sup>1</sup> STMIK AKBA  | Item Quality Analysis Instrument In The College Entrance Test In The View Of<br>The Expert Validator   |
|                | Mislia   | UPRI   | An Implementation Of Character Education In Scout Extracurricular Activity<br>At SMPN 1 Maros  |
|                | Darlan Sidik   | Universitas Negeri Makassar  | Application Of ICT For Distance Learning In Cooperation Program Of State<br>University Of Makassar   |
| 16.30 – 17.00  | Farida Aryani <sup>1</sup> , Abdullah<br>Sinring <sup>2</sup> , Muh. Rais <sup>3</sup> | Universitas Negeri Makassar  | Conseling Guidance Services Using SIMPESA<br>(Sistem Aplikasi Peminatan Siswa)   |
|                | Muhammad Jafar   | Universitas Negeri Makassar  | Professional Competence Development Of English Teachers In Indonesian<br>Junior High School  |
|                | Bakharani Rauf   | Universitas Negeri Makassar  | Analisis Of Motivation And Interest Of Secondary High School Students To<br>Continue The Study In Vocational High School   |
|                | Abd. Halim   | Universitas Negeri Makassar  | A Motivational Study On Learning English In The Extended Learning Program  |
| 17.00 – 17..30 | Syamsiah D.  | Universitas Negeri Makassar  | Integrated Cooperative Model Application Reading Composition (CIRC) To<br>Improve Understanding Learning Outcomes Of Reading Class V SD Negeri<br>Sudirman II Makassar |
|                | Umi Farida   | Universitas Negeri Makassar  | The Challenges Of Higher Education In Asean Economic Community (Aec)   |
|                | Eko Wagiyanto  | Universitas Negeri Makassar  | Policy Analysis On Prevention Of Child Dropout Of School<br>Case Study: Movement Back To School In Mamuju  |
|                | Amirullah Abduh <sup>1)</sup> and<br>Rosmaladewi <sup>2)</sup>                         | <sup>1)</sup> UniversitasNegeri Makassar, Indonesia<br><sup>2)</sup> Politeknik Pertanian Negeri Pangkep,<br>Indonesia | English Language Teaching In An Indonesian Primary School:<br>Teachers' Perspectives   |

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## **ENVIRONMENTAL VALUE OF RIVER BANK**

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### **ABSTRACT**

*This article describes about the environmental value of riverbank. The area of the left and right borders of the river, riverbank has many values to the river quality. Based on the results obtained literature study, there are four environmental values of riverbanks. The first value as a buffer zone to maintain a stable function of the river. Functions related to the river flow velocity, erosion and sedimentation. Vegetation on riverbanks affect the position of silt are carried by runoff. Riverbanks with cover crops that can capture the mud and prevent drainage of mud to the bottom of the river. Furthermore, vegetation will prevent sedimentation in riverbed. The second value is riverbank has benefit to prevent of flooding. Water absorption of land in riverbank can prevent the increasing of velocity of river flow. The impact of high velocity of flow effects the incidence of flooding in downstream area. The third value is conservation area and biodiversity. The area along the river with sediment soil conditions has high nutrient, it facilitates the growth of various vegetation or biodiversity. The fourth value as environmental education tools for the community.*

**Keywords : riverbank, environmental, community**

### **INTRODUCTION**

The river is a main source to fulfill the basic needs of drinking water and irrigation. Due to multifarious anthropogenic activities has created havoc to the river health (Yadav, Kumar, & Sharma, 2014). The function of river ecosystem must always ensure both on quality and flow. The poor quality the flow marked with excessive flooding or the overflowing of tributary to land around. Discharge flow on the rainy season excessive and can not be accommodated by the body of river or exceeds the capacity of the river. The flow of water excessive also can cause landslide and caused enlarge transportation sediment (Pertiwi, 2011).

Riverbank as part of floodplain has many function of river ecology. Vegetation in the area were into splints sustainability the function of river by holding out or capture mud that eroded and other elements of chemicals including pesticide and fertilizer carried away and prevent

them entering to river body (Pertiwi, 2011).

Riverbanks or riparian area has a variety value for river stream quality. Characteristic of river are associated with aquatic river system with the condition of the soil, vegetation and other factors that affect the interaction of aquatic and terrestrial. Specifically, riparian drainage can accommodate pesticides and fertilizers into water bodies and as the habitat of plants and animals. (Svejcar, 1997)

Control of riverbank using is set to the Minister of Public Works and Housing of the Republic of Indonesia Number 28/PRT/M/2015 about Determination Line Border for Rivers And Lakes.

The policy outlined that riverbank is the space between the edge of the riverbed and foot embankment in located on the left and or right of the riverbed. The next line of riparian is invisible line on the left and right of the riverbed is set as the limit of the river protection

Based on the information above, it appears that riverbank is very important for human life, meanwhile it have



substantial environmental benefits in the protection of the river. Therefore, this article describes about information from literature review and conclude the environmental value of riverbank.

## DISCUSSION

### Environmental Value of Riverbank

#### a. Maintaining the stability of the river function of the river.

River functions can generally be divided into two parts, namely the maintenance of water quality and flow stability. The water quality of the river indicated by physical characteristics, chemical and biological. Physical characteristics are marked with turbidity, color and temperature. Chemical characteristics marked by the level of acidity (pH) and the amount of oxygen in the water (CO, BOD and DO). Biological characteristics marked with the content of waterplant and pathogenic microorganisms.

Flow stability of river indicates stable flow or state discharge. The large flow rate cause a large impact on the incidence rate of erosion, landslides and floods. Rivers has five natural function, namely: 1) The function of the transport stream that is the flow of rain water along with sediment transport, 2) The function of surface water resources, 3) Function catchment on industrial waste, agriculture and settlements, 4) The function of habitat for aquatic biota and 5) the natural function of the natural protective barrier. (Men & Liu, 2009).

As the element in hydrological cycle, the river becomes the accumulated three types of runoff that surface runoff, interflow and groundwater runoff. (Suyono & Takeda, 1999) Rainwater that falls to the ground partially infiltrated and partly fill the contours of the ground, and then flows into a lower area and into a river. The flow of water is surface runoff. The

flow of intra based on absorbed by the soil and exit back to the river. Groundwater runoff came out slowly in the long term low to the ground (Pertiwi, Astika, Sapei, & Purwanto, 2011).

Riverbanks or areas on the left and right edges of the river is an area that is considered in the improvement of ecological functions of aquatic and terrestrial, water quality, hydraulic and morphological river. Three benefits riverbanks namely conservation, water quality protection and maintain meandering. As conservation areas, riverbanks overgrown with a variety of vegetation, both crops low and annual plant. Protection of water quality of the river by the vegetation is grass growing on the banks withstand the influx of chemicals or agricultural waste and settlements entered the water bodies (A Maryono, 2005) , Large trees as annual crops can cool river water and protect the surrounding region. The water temperature of the river affect aquatic life. High river water temperatures are not good for the life of fish and other biota. the optimal temperature range for fish life is 28°C-32°C (Siahaan, Indrawan, Soedharma, & Prasad, 2011). In addition, the strong roots of the vegetation, will protect riverbanks from erosion. Hence, the ecology along the river is very influential on the quality of the river. Good physical condition, as well as chemistry and biology of the quality of the stream. (Figure 1)

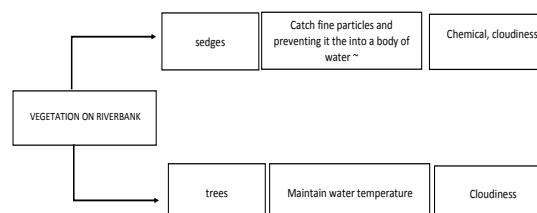


Figure 1. Values as a buffer zone along the river

#### b. As the area of flood prevention

Excessive flooding or overflow in river caused by the open dynamics of streams. Stream pressure of water from the surface of a large area is the accumulation of the flow of water catchment areas. If catchment area able to reduce the surface flow or low absorption of water, the river flow greater. Catchment areas with low infiltration caused by settlement or land use on marginal lands. The ideal conditions of water catchment areas that sustain the hydrological condition of the forest ecosystem. However, it is difficult to maintain due to the use of natural resources excessively.

Conversion of forests can affect hydrological processes and water balance, especially in the river as a natural drainage system. (Lipu, 2012). Therefore, river management should be integrated with watershed management. (Figure 2)

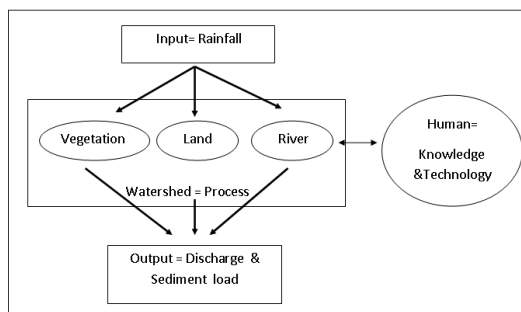


Figure 2. Watershed Ecosystem (Pertiwi, Astika, Sapei, et al., 2011)

Watershed management aims to maintain the environmental services that it provides in terms of balance hidroorology systems in nature. The balance shown by water quantity, water quality, the ratio of maximum and minimum discharge and ground water level. Indicators watershed ecosystem balance is strongly influenced by the condition of vegetation, soil quality and the condition of the river (Pertiwi, Astika, Sapei, et al., 2011)

The riverbank is a small part of the watershed must also be managed properly. Various publications illustrates that the

width of the river banks can be a media flood prevention (Table 1)

Table 1. Function of Riverbank as Flooding retention

| Publication/Author                      | The wide border river relate to the delivery of room for flood meandering |  |
|---|---|--|
|   | Width of Riverbed <sup>⊕</sup>  | Width of Riverbed function   |
| Smardon & Felleman, 1996                | The width is twice of canopy trees in the river side                      | To give space for meandering   |
| Verry, 1992 in Divelbiss, 1994          | 150 ft = 45 m   | Flooding protection  |
| Bertulli, 1981 and Castelle et al, 1994 | (50-90) m   | Flood Protection for over 100 years<br>In forest areas can reduce the increase in flow rate fluctuations |
| Lynch & Corbett, 1990                   | 115 ft = 30 m   | Maintaining the aquatic systems of river stability   |
| Lewis, 1998                             | 120 ft = 36 m (2 x 18m = 36 m)  | protect from meandering movement & Flooding  |
| Resume                                  | (5-90) m  |  |

(Agus Maryono, 2009)

Based on the table 1. It appears that the riverbanks should be protected is at least 90 meters. Furthermore, based on analysis of hydrology and hydraulics of the river, also can be calculated reduction of river flow.

In small rivers in Kabuopaten Soppeng obtained calculations, the optimal width of the banks which varies for each area is between 100 meters to 150 meters in diameter vegetation a minimum of 10 cm and 20 cm. By managing the riverbanks, the water level along the river does not exceed 2.5 meters and the flow rate can be reduced by up to 76% (Pertiwi, Astika, Sapei, et al., 2011).

### c. The Area Of Conservation And Biodiversity

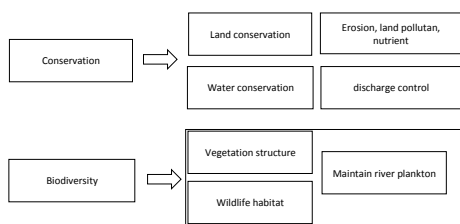
As the effort to preservation of natural resources and ecological balance, conservation must also be able to ensure the utilization of natural resources in a balanced way. In large cities, the river banks used as settlement so that the absorption of water into the ground is relatively small. This causes the riverbank does not function as a water conservation area or the flow of water stored inside the water bodies. In this condition, the

sustainability of the flow is difficult to maintain and drought occurs during the rainy season.

Whereas the amount of surface flow causes the debt, the greater the flow of the river and caused a flood. If the system is ecological and hydrological river border is interrupted such as structural levees, normalization and structural weir changed the border area and disturb the ecological functions and hydrological vital will be damaged (Hidayat, 2009)

In the aspect of soil conservation, runoff large surface brings with sediment transport and flow in the water body. The flow of water with high sediment transport may increase the incidence of soil erosion or even mudslides on the riverbank. In the aspect of biodiversity, ecological function of vegetation along the river is a habitat for flora and fauna and as a store of soil nutrients (Pertiwi, Astika, & Sapei, 2011).

Naturally, the river vegetation component will provide the plant humus or manure from sedimentation process. Furthermore, the vegetation also serves provider of nutrients for the river fauna. Based on the description, the components of riverine vegetation should be preserved as conservation of water and soil. (Figure 2)



**Figure 3. Konservation and biodiversity in Riverbank**

#### **d. As area of environmental education for the community.**

In daily life, there is a close relationship between human and river. Humans need the river to support its water needs. Conversely where the river can also be affected by human activities. Thus, in

the management of the river, man becomes the main focus. The management of natural resources involving the community can be done with two approaches that structural and non structural approaches. Structural approach directed at well-organized structure and system of relationships between all the components and systems of human life as well as related supporting components, including components of social, economic and physical. By structuring approach, the community is expected to get wider chance to be able of using natural resources in a sustainable manner. Non-structural is an approach that involves human beings as subjects who have the ability to act according to his will. Such an approach assumes that the local people with the knowledge, skills and awareness can enhance its role in the protection of natural resources around them. Therefore, one of the efforts to enhance the role of local communities in the management of natural resources is to increase the knowledge, skills and awareness to do something to help protect natural resources (Nurmalasari, 2013).

For the development of community participation, the needed environmental education for the community. Environmental education is directed to develop knowledge and motivation and human skills for use and conservation of natural resources appropriately. Furthermore, environmental education is the process of recognizing values and clarifying concepts in the inter-relatedness among man, his culture, and his biophysical surroundings (Pertiwi, n.d.). Specifically, the area along the river which is a barrier between human life and the flow of the river is well understood by the public character. But with the demands of the human need for land led to the utilization of the river banks and protect the river can not be controlled. With their knowledge, the motivation of public will increase to maintain river.



The fundamental reason for the willingness of the community in the management of land along the river is the protection of bank erosion and improving the quality of the harvest. In addition, the motivation to protect land and settlements around from flooding also be a driving force public participation (Pertiwi, Astika, Sapei, et al., 2011).

Based on the above, people who live on the riverbanks should be educated to involved in river protection. Furthermore riverbank can be using as educational media environment. With an understanding of the impact of human activity on the sustainability of the river as well as the motivation of maintaining the land assets, then the public will participate in the management of the riverbanks

## CONCLUSION

Various environmental values on the banks of the river described above are:

1. Riverbank as a buffer zone to maintain a stable function of the river. Functions related to the river flow velocity, erosion and sedimentation. Vegetation on riverbanks affect the position of silt are carried by runoff.
2. Riverbank has benefit to prevent of flooding. Water absorption of land in riverbank can prevent the increasing of velocity of river flow. The impact of high velocity of flow effects the incidence of flooding in downstream area.
3. Riverbank as area to develop of conservation area and biodiversity. The area along the river with sediment soil conditions has high nutrient, it facilitates the growth of various vegetation or biodiversity.
4. Riverbank as environmental education tools for the community.

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